

CLAIMS

1. Use of S6 as a biomarker for determining the sensitivity of a proliferative disease in a subject to treatment with an mTOR inhibitor.
2. Use of S6 as a biomarker for selecting subjects suffering from a proliferative disease for treatment with an mTOR inhibitor.
3. Use according to claim 1 or 2, comprising use of the level of expression and/or phosphorylation state of S6.
4. Use according to any preceding claim, comprising use of the level of expression of phosphorylated S6 protein.
5. A method for determining the sensitivity of a proliferative disease in a subject to treatment with an mTOR inhibitor, comprising determining the level of expression and/or phosphorylation state of S6 in a sample derived from the subject.
6. A method or use according to any preceding claim, wherein the proliferative disease comprises a cancer.
7. A method or use according to any preceding claim, wherein the mTOR inhibitor comprises rapamycin or a rapamycin derivative.
8. A method or use according to claim 7, wherein the rapamycin derivative comprises 40-O-(2-hydroxyethyl) rapamycin.
9. A method according to any of claims 4 to 8, comprising determining the level of expression of phosphorylated S6 protein.
10. A method according to any of claims 4 to 9, wherein the sample is derived from a tumor in the subject.

11. A method according to any of claims 4 to 10, wherein increased expression of phosphorylated S6 relative to control is predictive of sensitivity of the proliferative disease to treatment with the mTOR inhibitor.
12. A method of selecting subjects suffering from a proliferative disease for treatment with an mTOR inhibitor, comprising determining the sensitivity of the proliferative disease to treatment with an mTOR inhibitor in each subject by a method as described in any of claims 4 to 11, and selecting those subjects showing increased expression of phosphorylated S6 for treatment with an mTOR inhibitor.
13. A method of treating a proliferative disease in a subject in need thereof, comprising determining the level of expression of phosphorylated S6 in a sample derived from the subject, by a method as described in any of claims 4 to 11, and treating the subject with an mTOR inhibitor if the level of expression of phosphorylated S6 is elevated.